OPERATING INSTRUCTIONS

TYPE 1211-C

UNIT OSCILLATOR

GENERAL RADIO COMPANY

OPERATING INSTRUCTIONS

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Form 1211-0100-G
April, 1964

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West Concord, Massachusetts, USA

GENERAL RADIO COMPANY
WEST CONCORD, MASSACHUSETTS, USA

SPECIFICATIONS

Frequency Range: 0.5 to 50 Mc in two ranges.

Frequency Calibration Accuracy: ±2 percent at no load.

Warmup Frequency Drift: 0.4% ±0.2%, largest at the high-frequency end of each range.

Frequency Controls: A two-position range switch, a six-inch dial with approximately logarithmic calibration and a slow-motion dial to indicate frequency increments of 0.2 percent per dial division.

Output System: Output available at a Type 874 coaxial connector at rear of instrument. Adjacent ground terminal also permits connection by Type 274-M Plug. Output is controlled by a 100-division dial.

Output Power: With Type 1203-B Unit Power Supply, at least 200 milliwatts into 50-ohm load at any frequency. Over the 0.5-to-5-Mc range, average output is approximately 1 watt; over the 5-to-50-Mc range, 0.4 watt. See below.

U.S. Patent No. 2,548,457.

Modulation: Plate modulation of 30% at audio frequencies can be produced by external source of 50 volts. Input impedance is about 8000 ohms.

Circuit: Hartley oscillator coupled directly to output. Capacitance and inductance are simultaneously changed for frequency variation.

Power Supply Requirements: 320 volts at 50 ma dc. 6.0 volts at 0.75 ampere ac or dc.

Power Supply Recommended: Refer to Table of Accessories, paragraph 1.3.

Tube: Type 5763 miniature vhf beam-power tube.

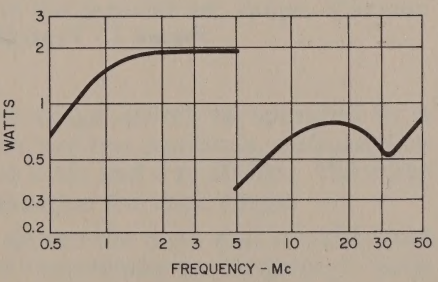
Mounting: Oscillator on aluminum casting is shielded with a spun aluminum cover. Assembly mounted on an L-shaped panel and chassis. Adaptor panels for relay-rack mounting are available.

Accessories Supplied: Type 874-R22LA Patch Cord, Type 874-Q2 Adaptor, telephone plug.

Dimensions: Width 8, height 7½, depth 12 inches (205 by 192 by 305 mm) over-all.

Weight: 11½ pounds (5.3 kg).

Typical output curves of Type 1211-C Unit Oscillator. Output with a regulated 300-volt power supply is reduced to about 0.8 of the values shown.



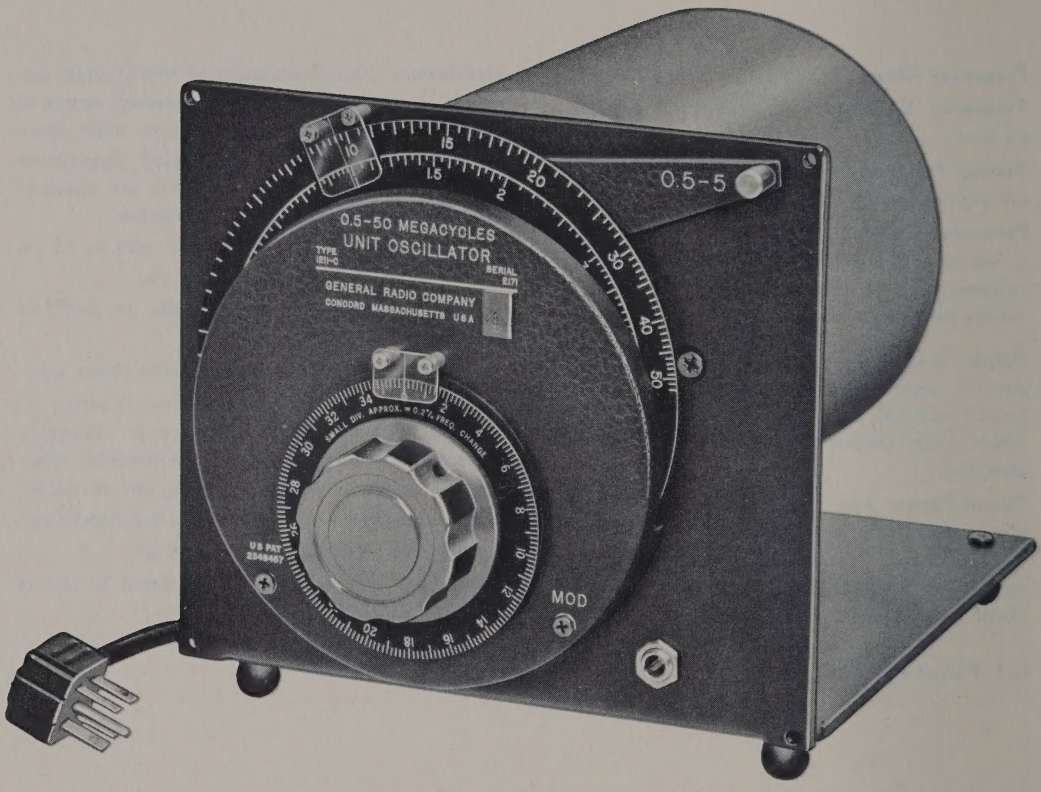


Figure 1. Type 1211-C Unit Oscillator.

SECTION 1

INTRODUCTION

1.1 PURPOSE.

The Type 1211-C Unit Oscillator (Figure 1) is a small, shielded, general-purpose oscillator of moderate power output, covering the frequency range of 0.5 to 50 megacycles in two logarithmic ranges. This convenient oscillator can be used to drive bridges, slotted lines, impedance comparators, and other measuring equipment. It can be modulated from an external source.

1.2 DESCRIPTION.

1.2.1 CIRCUIT. A Hartley circuit with a Type 5763 nine-pin miniature beam-power tube is used in the Type 1211-C Unit Oscillator. The output control is tapped across a portion of the tuned circuit for the low-frequency range, and is coupled to the tuned circuit by a pickup coil for the high-frequency range. Five resistors with a combined value of 2000 ohms are included in the plate-supply circuit to protect the oscillator tube.

A special circuit, with a nonlinear Thyrite resistor, is included in the grid circuit of the 0.5-to-5-Mc low-frequency oscillator to reduce distortion, but the circuit is not used in the 5-to-50-Mc range. Carrier distortion is under 5% at all frequencies.

1.2.2 FREQUENCY CONTROLS. The range switch is operated by a long lever above the main dial. There are two positions, indicated by the ranges marked on the lever: 0.5 to 5 Mc and 5 to 50 Mc. The main frequency dial carries a separate calibration for each range.

The small slow-motion dial that drives the main dial is calibrated to indicate directly small percentage increments in frequency. Each division of this dial corresponds approximately to a 0.2-percent change in frequency, except at the ends of the main frequency dial.

Both capacitance and inductance of the tuned circuit are varied simultaneously to produce the wide 10-to-1 frequency span for each range. The capacitance varies about 40 to 1, the inductance about 2.5 to 1. Two sickle-shaped tapered cores, one of iron-dust the other of aluminum (see Figure 3) are mounted to turn with the tuning-capacitor

shaft. As the frequency dial is rotated, the active core material within the inductor varies smoothly from the full dust core for maximum inductance through a minimum core to a full aluminum core for minimum inductance. The shapes of the cores and of the capacitor plates are designed for approximately logarithmic frequency change with angular rotation over the 10-to-1 range.

1.2.3 OUTPUT CONTROLS AND TERMINALS. The output is controlled by a 250-ohm resistive voltage divider (R102) mounted inside the large shield cover at the rear of the instrument. The dial of this control is calibrated in 100 arbitrary units, with maximum output at full clockwise rotation where the dial indicates zero. Typical characteristic curves of output voltage with a 50-ohm load are shown in the specifications. If the load is excessive, the instrument may stop oscillating unless the output control is set back far enough to reduce the coupling to the load.

The output terminals are at the rear of the instrument, near the output control. The output connector is a Type 874 Coaxial Connector with a grounding terminal beside it.

1.2.4 SHIELDING. All supply leads and the modulation circuit are well filtered to reduce leakage. The large cylindrical cover that fits over the oscillator has to be clamped tightly by a metal strap.

1.2.5 MODULATION. Amplitude modulation is obtained by insertion of external voltages into the cathode circuit. For small frequency variations, external voltages are inserted into the grid circuit.

Thirty-percent amplitude modulation of the oscillator introduces incidental frequency modulation which varies from about 1000 to 10,000 cycles, over each one of the two frequency ranges. Amplitude modulation, essentially free from frequency modulation, can be obtained at carrier frequencies above 10 Mc by the use of a Type 1000-P6 Crystal Diode Modulator.

1.2.6 SWEEP AND DIAL DRIVES. The frequency dial of the Type 1211-C Unit Oscillator can be mechanically swept back and forth by the Type 1750-A Sweep Drive, the Type 908-P Synchronous Dial Drive, or the Type 908-R X-Y Dial Drive, and the amplitude of the oscillator output can be held constant by the Type 1263-B Amplitude-Regulating Power Supply. This is useful to simulate a sweep generator for recording or to display frequency characteristics on an oscilloscope.

1.3 ACCESSORIES.

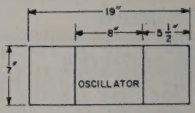
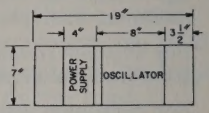
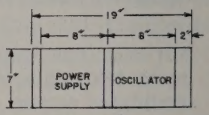
Supplied with the Unit Oscillator are a Type 874-R22LA three-foot shielded Patch Cord, a Type 874-Q2 Adaptor, and a phone plug. The adaptor can be plugged either into the output connector or into the output end of the cable, and permits direct connection either by wire leads

or by standard banana-plug connections. When complete shielding of the load is desired, one of the Type 874 panel connectors listed at the rear of this manual should be mounted on the shield of the load.

TABLE OF ACCESSORIES AVAILABLE

Function	Instrument	Remarks
POWER SUPPLIES		
For best stability, freedom from line-voltage variations, and minimum residual fm.	Type 1267-A Power Supply	Regulated dc plate and heater supplies.
For relative immunity from line transients.	Type 1201-B Unit Power Supply	Regulated dc plate supply and ac heater supply.
For maximum output at minimum cost.	Type 1269-A (or 1203) Power Supply	Filtered dc plate supply and ac heater supply, both unregulated.
For amplitude-regulated cw or 1-kc square-wave modulated output.	Type 1263-B Amplitude-Regulating Power Supply	Leveled output of 20 mw into 50 ohms. Requires Type 874-VRL Voltmeter Rectifier.
MODULATORS		
For square-wave modulation with little incidental fm.	Type 1263-B	See listing above.
For sinusoidal plate modulation at 400 and 1000 cps.	Type 1214-A Unit Oscillator	Provides 30% modulation.
SWEEP DRIVES		
The Type 1263-B Amplitude-Regulating Power Supply is recommended for use with all sweep drives.		
For automatic frequency sweep at 96° per minute.	Type 908-P1 Synchronous Dial Drive	Drive fits dial mechanism in place of knob. Adjustable stops that clamp on dial can be used to restrict range swept.
For automatic sweep at 720° per minute.	Type 908-P2 Synchronous Dial Drive	
For automatic sweep at 96° per minute and provision for manual setting or drive.	Type 908-R96 Dial Drive	Potentiometer provides output sweep voltage proportional to dial position.
For adjustable sweep arc and speed.	Type 1750-A Sweep Drive	Magnitude and center position of sweep arc and the sweep rate are set by panel controls; provides horizontal deflection voltage proportional to shaft angle.

Table of Accessories Available (cont.)

Function	Instrument	Remarks
ADAPTOR PLATE SETS		
To rack-mount the oscillator alone.	Type 480-P408 Adaptor Plate Set	
To rack-mount the oscillator with a Type 1267-A or 1269-A Power Supply.	Type 480-P412 Adaptor Plate Set	
To rack-mount the oscillator with a Type 1263-B Power Supply.	Type 480-P416 Adaptor Plate Set	
COAXIAL ELEMENTS	See table at the rear of this manual.	
To convert from Type 874 to other coaxial systems.	Type 874-Q Adaptors	
To reduce standing-wave ratio on transmission lines.	Type 874-G Attenuators	
For use in a heterodyne detector system.	Type 1212-P3 or 1232-P1 RF Mixers	Use with Type 1212-A Unit Null Detector or Type 1232-A Tuned Amplifier and Null Detector.
To provide monitored output level.	Type 874-VR(-VRL) Voltmeter Rectifier	Use with Type 874-V1 Voltmeter Indicator.

SECTION 2

OPERATING PROCEDURE

2.1 INSTALLATION.

2.1.1 CONNECTION TO POWER SUPPLY. The Unit Oscillator is shipped complete with tube installed, and is ready for use when connected to a suitable power supply. A cord and connector are supplied with the instrument for direct connection to a General Radio power supply. Refer to paragraph 1.3 for power-supply recommendations.

For some applications, it is desirable that the output level remain constant as the frequency is varied. The Type 1263-B Amplitude-Regulating Power Supply automatically controls the plate voltage to keep the oscillator output at a constant level of two volts or less. This power supply also provides 1-kc square-wave modulation from an internal generator. The following parts are required to couple the output of the Type 1211-C Unit Oscillator to the Type 1263-B Amplitude-Regulating Power Supply: a Type 874-VR Voltmeter Rectifier and a Type 874-R22LA Patch Cord in addition to the modulation connector cable supplied with the power supply.

2.1.2 BENCH MOUNTING. The Type 1263-B, 1267-A, or 1269-A Power Supply can be rigidly attached to the oscillator by means of the narrow adaptor plate and associated screws supplied with the power supply and the clip which is attached to the oscillator L bracket with the mounting screw for the left-hand front foot. To attach the units, proceed as follows:

a. Temporarily remove the upper and lower right-hand corner panel screws from the front panel of the power supply. Place the adaptor plate supplied with the power supply in position, and replace the screws.

b. Remove the front and rear left feet from the oscillator, and install the clip freed from the front-foot mounting screw on the top surface of the oscillator L bracket in the left rear foot mounting location. Note that the L bracket hole in this location is tapped 10-32 to secure the mounting screw. Do not replace the feet.

c. Attach the oscillator to the power supply by fastening the upper and lower right-hand corner of the adaptor plate to the corresponding tapped holes in the upper and lower left-hand corners of the oscillator panel. Attach the clip at the left-hand rear of the oscillator to the matching hole in the right-hand side of the power supply. The necessary screws and nut are supplied with the power supply.

2.1.3 RELAY-RACK MOUNTING. To rack-mount the oscillator by itself, a Type 480-P408 Adaptor Plate Set is required. To rack-mount the oscillator attached to a Type 1267-A or 1269-A Power Supply, a Type 480-P412

Adaptor Plate Set is required. To rack-mount the oscillator attached to a Type 1263-B Power Supply, a Type 480-P416 Adaptor Plate Set is required. After attaching the power supply to the left-hand side of the oscillator as described in paragraph 2.1.2, one adaptor plate is installed on the left-hand side of the combined unit, and the other on the right-hand side. The screws required are supplied with the Adaptor Plate Set.

2.2 OPERATION.

After turning on the power supply, adjust frequency and output (with the knob at the rear of the instrument). The frequency of the oscillator varies for some time after the power has been applied, until the temperature has stabilized. The warm-up drift depends on frequency and varies considerably from one oscillator to another. It is usually 0.4% ± 0.2% and is largest at the high-frequency end of each range where the time constant is about 15 minutes. At the lower end of each range, the time constant is about 30 minutes.

2.3 AMPLITUDE MODULATION.

An audio oscillator can be used to provide direct amplitude modulation over the audio-frequency range. The audio-oscillator circuit must supply a dc path and must be capable of carrying 50 ma dc. Connect the audio oscillator into the cathode circuit at the MOD jack on the right side of the panel. Recommended is the Type 1214-A Unit Oscillator, which delivers about 50 volts at either 400 or 1000 cycles per second and yields about 30-percent modulation at full output. Envelope distortion is under 4% over most of the frequency range. A telephone plug is supplied for connection to the MOD jack.

2.4 FREQUENCY VARIATION.

A small amount of frequency variation can be obtained by insertion of external voltages into the grid circuit of the oscillator tube. To do this, the link connecting tube pin 7 to anchor terminal 11 must be shifted to anchor terminal 12, as indicated in the wiring diagram and in Figure 3. External voltages then can be applied at the MOD jack on the front panel. Thirty volts will produce a frequency shift of about 20 kc in the low-frequency range but only 2 kc in the high-frequency range.

2.5 SWEEP OPERATION.

The Type 1211-C Unit Oscillator is well suited for swept operation due to the use of ball bearings in the tuning drive mechanism.

A sweep drive can be coupled either to the slow-motion dial or to the main frequency dial of the Unit Oscillator. When the main frequency dial is coupled to the sweep drive, the sweep rate should be restricted to one excursion per second or less. The slow-motion dial can be driven at rates up to 5 cycles per second. The Type 1263-B Amplitude-Regulating Power Supply will maintain a constant rf output amplitude as the oscillator is swept.

When the Unit Oscillator is driven by a sweep or dial drive, all moving parts in the oscillator must be lubricated in accordance with paragraph 3.5. For recommended dial drives, refer to paragraph 1.3.

SECTION 3

SERVICE AND MAINTENANCE

3.1 WARRANTY.

We warrant that each new instrument sold by us is free from defects in material and workmanship and that properly used it will perform in full accordance with applicable specifications for a period of two years after original shipment. Any instrument or component that is found within the two-year period not to meet these standards after examination by our factory, district office, or authorized repair agency personnel will be repaired, or at our option, replaced without charge, except for tubes or batteries that have given normal service.

3.2 SERVICE.

The two-year warranty stated above attests the quality of materials and workmanship in our products. When difficulties do occur, our service engineers will assist in any way possible. If the difficulty cannot be eliminated by use of the following service instructions, please write or phone our Service Department (see rear cover), giving full information of the trouble and of steps taken to remedy it. Be sure to mention the serial and type numbers of the instrument.

Before returning an instrument to General Radio for service, please write to our Service Department or nearest district office, requesting a Returned Material Tag. Use of this tag will ensure proper handling and identification. For instruments not covered by the warranty, a purchase order should be forwarded to avoid unnecessary delay.

3.3 ACCESS TO COMPONENTS.

With the shield cover removed, all but the components of the rf filters are accessible, and they can be checked with an ohmmeter without opening the filter cavity. When replacing the shield cover, tighten the shield strap to ensure low leakage.

For direct access to the rf filter components, remove the frequency dials and the panel. When replacing the dials, set the main dial at its reference line (long line below the lower frequency calibrations) with the tuning capacitor plates at full mesh.

3.4 VACUUM-TUBE DATA.

The following table gives tube-socket voltages and resistances, measured from socket pin to ground. The dc voltages were measured with a 20,000-ohm-per-volt meter whose full-scale ranges were 10, 50, 250, and 1000 volts. The instrument was powered by a Type 1203-B Unit Power Supply from a 115-volt, 60-cycle power line. The frequency controls were set at 0.5 Mc.

The resistance measurements were made with the power supply disconnected and all the terminals of PL102 shorted together. Voltage and resistance values may vary as much as ±20% from those given in the table.

Pin No.	Element	Volts to Gnd		Resistance to Gnd	
		LO Range	HI Range	LO Range	HI Range
1	Plate	340 v	225 v	1.3 kΩ	1.4 kΩ
3	Sup Grid	0	0	0	0
4	Heater	0	0	0	0
5	Heater	6.3 v ac	6.3 v ac	4 Ω	4 Ω
6	Screen Grid	125 v	220 v	56 kΩ	9.7 kΩ
7	Cathode	10 v		440 Ω	440 Ω
8, 9	Control Grid	1 v		10.4 kΩ	10.4 kΩ

3.5 LUBRICATION.

When the Type 1211-C Unit Oscillator is driven by a Sweep or Dial Drive, all moving parts in the oscillator must be properly lubricated. This includes an occasional drop of light oil at the ball bearings, and occasional relubrication of the pinion gear in the dial assembly. Wipe off old lubricants before applying new lubrication. Recommended lubricants are Anderol L-401-D instrument oil and Lubrico H101 light grease.

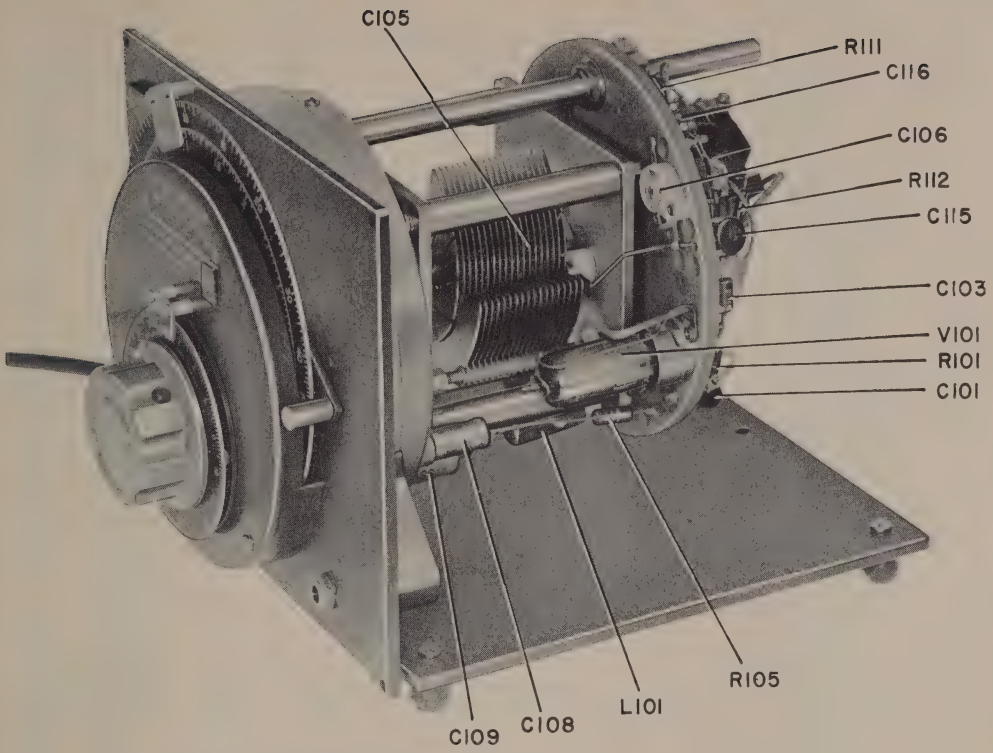


Figure 2. Interior view of the Type 1211-C.

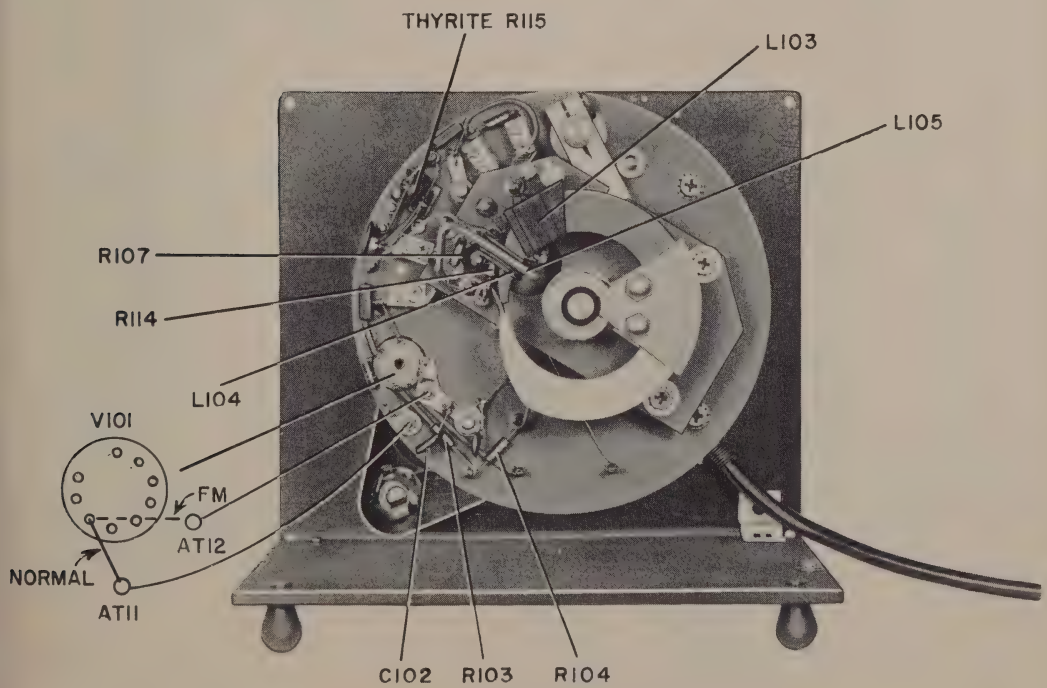


Figure 3. Rear interior view of the Type 1211-C.

TYPE 874 COAXIAL COMPONENTS

TYPE 874 CABLE CONNECTORS

APPLICABLE CABLE TYPES		CONNECTOR TYPE	CABLE	CABLE LOCKING	PANEL FLANGED	PANEL LOCKING	PANEL LOCKING RECESSED
		874-A2	-CA	-CLA	-PBA	-PLA	-PRLA
	50-OHM	RG-8A/U RG-9B/U RG-10A/U RG-87A/U RG-116/U RG-156/U RG-165/U RG-166/U RG-213/U RG-214/U RG-215/U RG-225/U RG-227/U	-C8A	-CL8A	-PB8A	-PL8A	-PRL8A
	NON-50-OHM	RG-11A/U RG-12A/U RG-13A/U RG-63B/U RG-79B/U RG-89/U RG-144/U RG-146/U RG-149/U RG-216/U					
	50-OHM	874-A3 RG-29/U RG-55/U (Series) RG-58/U (Series) RG-141A/U RG-142A/U RG-159/U RG-223/U	-C58A	-CL58A	-PB58A	-PL58A	-PRL58A
	NON-50-OHM	RG-59/U RG-62/U (Series) RG-71B/U RG-140/U RG-210/U	-C62A	-CL62A	-PB62A	-PL62A	-PRL62A
	50-OHM	RG-174/U RG-188/U RG-316/U	-C174A	-CL174A	-PB174A	-PL174A	-PRL174A
	NON 50-OHM	RG-161/U RG-187/U RG-179/U					

Example: For a locking cable connector for RG-8A/U, order Type 874-CL8A.

TYPE 874 ADAPTORS

TO TYPE		874-
BNC	plug	QBJA
		QBJL*
	jack	QBPA
C	plug	QCJA
		QCJL*
	jack	QCP
HN	plug	QHJA
	jack	QHPA
LC	plug	QLJA
		QLPA
LT	plug	QLTJ
	jack	QLTP
Microdot	plug	QMDJ
		QMDJL*
	jack	QMDP
N	plug	QNJA
		QNJL*
	jack	QNP
SC (Sandia)	plug	QSCJ
		QSCJL*
	jack	QSCP
TNC	plug	QTNJ
		QTNJL*
	jack	QTNP
UHF	plug	QUJ
		QUJL*
	jack	QUP
UHF	7/8-in.	QU1A
50-Ω	1-5/8-in.	QU2
Air Line	3-1/8-in.	QU3A

*Locking Type 874 Connector.

Example: To connect Type 874 to a Type N jack, order Type 874-QNP.

CONNECTOR ASSEMBLY TOOLS

TYPE 874-	FUNCTION
TOK	Tool Kit
TO58	Crimping Tool
TO8	Crimping Tool

OTHER COAXIAL ELEMENTS

TYPE 874-		TYPE 874-	
A2	50 Ω cable (low loss)	LR	radiating line
A3	50 Ω cable	LTL	trombone constant-Z line
D20L, D50L	20-, 50-cm adjustable stubs	ML	component mount
EL, EL-L	90° ell	MB	coupling probe
F185L	185-Mc low-pass filter	MR, MRL	mixer-rectifier
F500L	500-Mc low-pass filter	R20A, R20LA	patch cord, double coax
F1000L	1000-Mc low-pass filter	R22A, R22LA	patch cord, double coax
F2000L	2000-Mc low-pass filter	R33	patch cord, single coax
F4000L	4000-Mc low-pass filter	R34	patch cord, single coax
G3, G3L		T, TL	tee
G6, G6L	3-, 6-, 10-, & 20-db attenuators	UBL	balun
G10, G10L		VCL	variable capacitor
G20, G20L		VI	voltmeter indicator
GAL	adjustable attenuator	VQ, VQL	voltmeter detector
H500L	isolator	VR, VRL	voltmeter rectifier
H1000L	isolator	W100	100-Ω termination
H2000L	isolator	W200	200-Ω termination
JR	rotary joint	W50, W50L	50-Ω termination
K, KL	coupling capacitor	WN, WN3	short-circuit terminations
L10, L10L	10-, 20-, & 30-cm rigid air lines	WO, WO3	open-circuit terminations
L20, L20L		X	insertion unit
L30, L30L		XL	series inductor
LAL	33-58 cm adjustable line	Y	cliplock
LK10L, LK20L	constant-Z adjustable lines	Z	stand

MISCELLANEOUS COAXIAL CONNECTORS

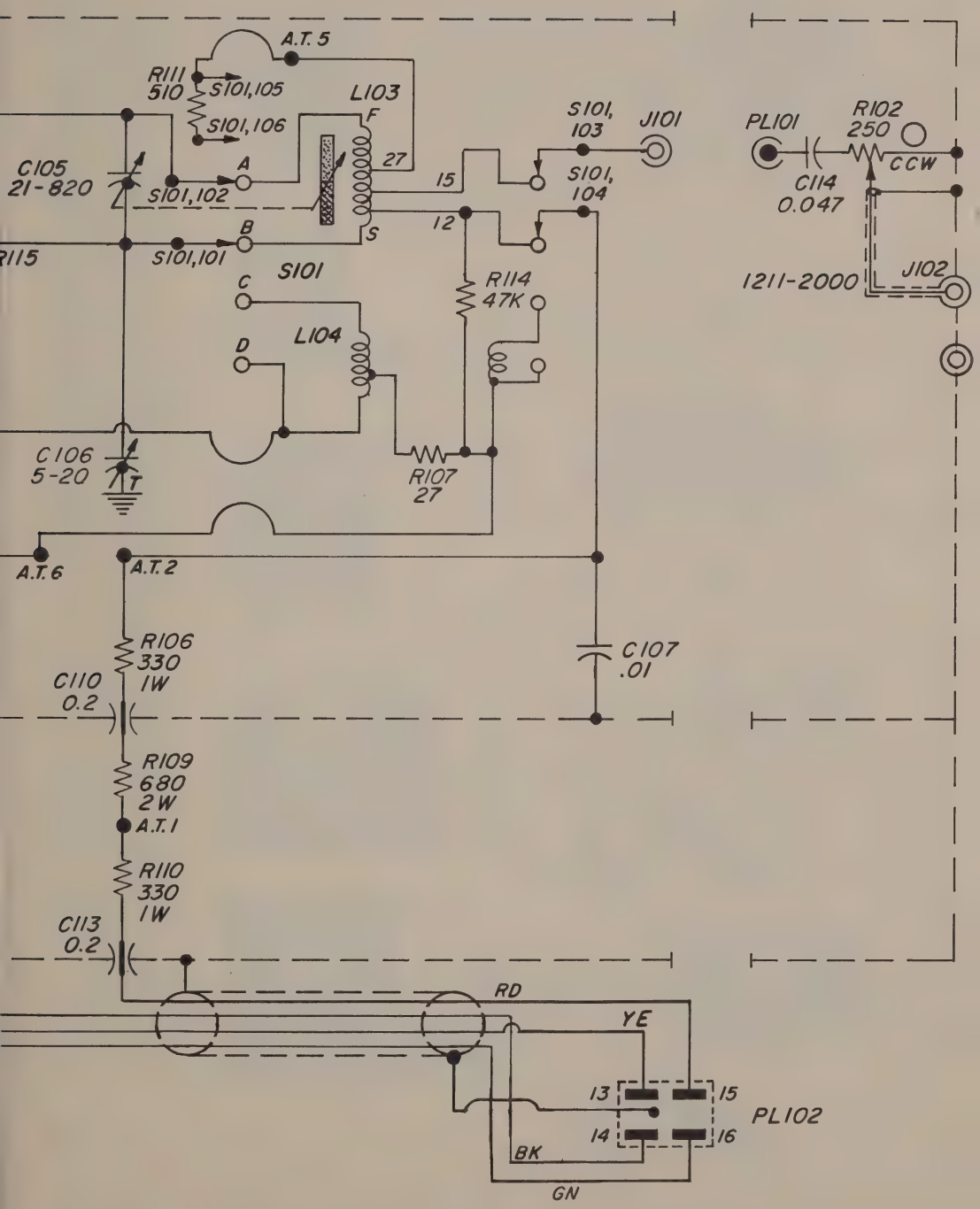
CONNECTOR TYPE	TYPE NO.	USED WITH
Basic	874-B	50-ohm Air Line
Basic Locking	874-BL	50-ohm Air Line
Panel Locking	874-PLT	Wire Lead
Panel Locking Recessed	874-PRLT	Wire Lead
Panel Locking Feedthrough	874-PFL	Type 874 Patch Cords

L suffix indicates locking Type 874 Connector.

FOR COMPLETE DETAILS, REFER TO THE GENERAL RADIO CATALOG.

ENGRAVING FOR S101

(0.5-5 RANGE SHOWN)



TYPE 874 COAXIAL COMPONENTS

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	NON 50-OHM	RG-161/U RG-187/U RG-179/U					

Example: For a locking cable connector for RG-8A/U, order Type 874-CL8A.

TYPE 874 ADAPTORS

TO TYPE		874-
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	jack	QBPA
C	plug	QCJA
		QCJL*
	jack	QCP
HN	plug	QHJA
	jack	QHPA
LC	plug	QLJA
		QLPA
LT	plug	QLTJ
	jack	QLTP
Microdot	plug	QMDJ
		QMDJL*
	jack	QMDP
N	plug	QNJA
		QNJL*
	jack	QNP
SC (Sandia)	plug	QSCJ
		QSCJL*
	jack	QSCP
TNC	plug	QTNJ
		QTNJL*
	jack	QTNP
UHF	plug	QUJ
		QUJL*
	jack	QUP
UHF	7/8-in.	QU1A
50-Ω	1-5/8-in.	QU2
Air Line	3-1/8-in.	QU3A

*Locking Type 874 Connector.

Example: To connect Type 874 to a Type N jack, order Type 874-QNP.

CONNECTOR ASSEMBLY TOOLS

TYPE 874-	FUNCTION
TOK	Tool Kit
TO58	Crimping Tool
TO8	Crimping Tool

OTHER COAXIAL ELEMENTS

TYPE 874-		TYPE 874-	
A2	50 Ω cable (low loss)	LR	radiating line
A3	50 Ω cable	LTL	trombone constant-Z line
D20L, D50L	20-, 50-cm adjustable stubs	ML	component mount
EL, EL-L	90° ell	MB	coupling probe
F185L	185-Mc low-pass filter	MR, MRL	mixer-rectifier
F500L	500-Mc low-pass filter	R20A, R20LA	patch cord, double coax
F1000L	1000-Mc low-pass filter	R22A, R22LA	patch cord, double coax
F2000L	2000-Mc low-pass filter	R33	patch cord, single coax
F4000L	4000-Mc low-pass filter	R34	patch cord, single coax
G3, G3L		T, TL	tee
G6, G6L	3-, 6-, 10-, & 20-db attenuators	UBL	balun
G10, G10L		VCL	variable capacitor
G20, G20L		VI	voltmeter indicator
GAL	adjustable attenuator	VQ, VQL	voltmeter detector
H500L	isolator	VR, VRL	voltmeter rectifier
H1000L	isolator	W100	100-Ω termination
H2000L	isolator	W200	200-Ω termination
JR	rotary joint	W50, W50L	50-Ω termination
K, KL	coupling capacitor	WN, WN3	short-circuit terminations
L10, L10L	10-, 20-, & 30-cm rigid air lines	WO, WO3	open-circuit terminations
L20, L20L		X	insertion unit
L30, L30L		XL	series inductor
LAL	33-58 cm adjustable line	Y	cliplock
LK10L, LK20L	constant-Z adjustable lines	Z	stand

MISCELLANEOUS COAXIAL CONNECTORS

CONNECTOR TYPE	TYPE NO.	USED WITH
Basic	874-B	50-ohm Air Line
Basic Locking	874-BL	50-ohm Air Line
Panel Locking	874-PLT	Wire Lead
Panel Locking Recessed	874-PRLT	Wire Lead
Panel Locking Feedthrough	874-PFL	Type 874 Patch Cords

L suffix indicates locking Type 874 Connector.

FOR COMPLETE DETAILS, REFER TO THE GENERAL RADIO CATALOG.

PARTS LIST

RESISTORS

R101	10 k	± 5%	1/2 w	REC-20BF(103B)
R102	250	±10%		POSC-12(251C)
R103	220	± 5%	1/2 w	REC-20BF(221B)
R104	8.2 k	± 5%	1/2 w	REC-20BF(822B)
R105	220	±10%	1 w	REC-30BF(221C)
R106	330	±10%	1 w	REC-30BF(331C)
R107	27	± 5%	1/2 w	REC-20BF(270B)
R108	220	±10%	1 w	REC-30BF(221C)
R109	680	±10%	2 w	REC-41BF(681C)
R110	330	±10%	1 w	REC-30BF(331C)
R111	510	± 5%	1/2 w	REC-20BF(511B)
R112	2.2 k	± 5%	1/2 w	REC-20BF(222B)
R113	510 k	± 5%	1/2 w	REC-20BF(514B)
R114	47 k	± 5%	1/2 w	REC-20BF(473B)
R115				REU-8

CAPACITORS

C101	0.0022 µf	±20%	500 dcwv	COC-61(222D)
C102	0.01 µf	±20%	500 dcwv	COC-62(103D)
C103	75 pf	± 5%	500 dcwv	COM-15D(750B)
C105	21-820 pf			848-404-3
C106	5-20 pf			COT-18
C107	0.01 µf	±20%	500 dcwv	COC-62(103D)
C108	0.01 µf	+25-10%	600 dcwv	COU-31(103C)
C109	0.2 µf	+20-10%	400 dcwv	COU-32(204C)
C110	0.2 µf	+20-10%	400 dcwv	COU-32(204C)
C111	0.01 µf	+20-10%	600 dcwv	COU-33(103C)
C112	0.2 µf	+20-10%	400 dcwv	COU-34(204C)
C113	0.2 µf	+20-10%	400 dcwv	COU-34(204C)
C114	0.047 µf	±10%	600 dcwv	COL-71(473C)
C115	0.01 µf	±20%	500 dcwv	COC-62(103D)
C116	51 pf	± 5%	500 dcwv	COM-15D(510B)
C117	56 pf	± 5%	500 dcwv	COM-15D(560B)
C118	100 pf	± 5%	500 dcwv	COM-15D(101B)

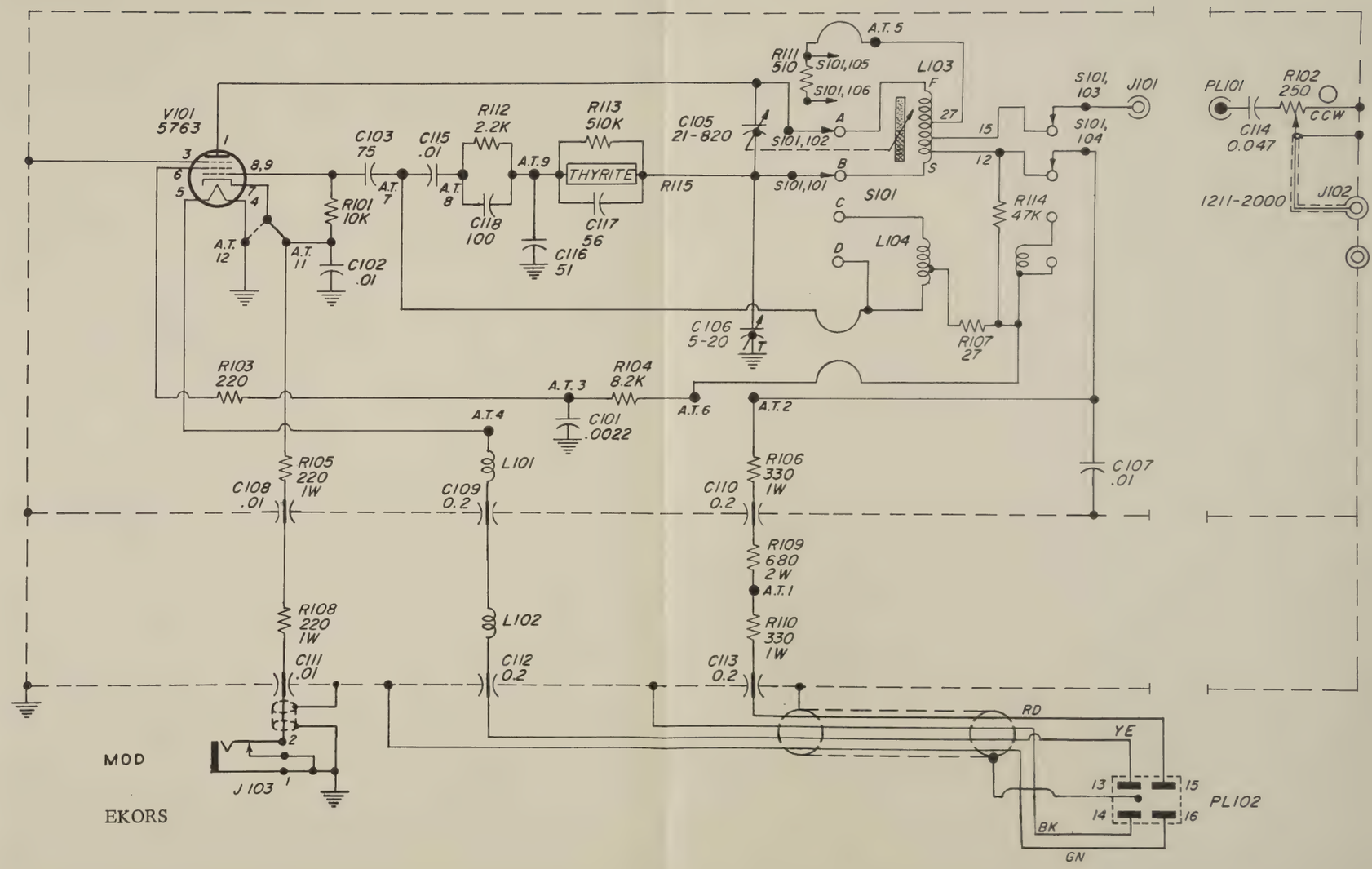
MISCELLANEOUS

L101	Inductor	ZCHA-29	J102	Jack	1211-2000
L102	Inductor	ZCHA-29	J103	Jack	CDSJ-10
L103	Inductor	1211-27	PL101	Plug	274-360
L104	Inductor	1211-86	PL102	Plug	1211-33
L105	Inductor	1211-801	S101	Switch	Built-in
J101	Jack	BUMT-135A	V101	Tube	5763

5-50 0.5-5

ENGRAVING FOR S101

(0.5-5 RANGE SHOWN)



ACCESSORY EQUIPMENT

TYPE 1267-A REGULATED POWER SUPPLY

Regulated heater and plate supplies provide freedom from line-voltage variations and minimum residual fm. Attaches readily to Type 1211-C Oscillator.

Two models available:
Type 1267-A (for 115-v operation).
Type 1267-AQ18 (for 230-v operation).

TYPE 1269-A POWER SUPPLY

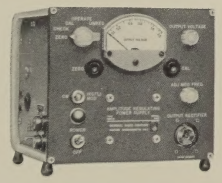
A general-purpose power supply with filtered dc plate supply and ac heater supply (both unregulated). Attaches readily to Type 1211-C Oscillator. Can be operated from 115-v or 230-v supply.

TYPE 1201-B UNIT REGULATED POWER SUPPLY

Ac heater supply and regulated dc plate supply which minimizes effects of line-voltage variations.

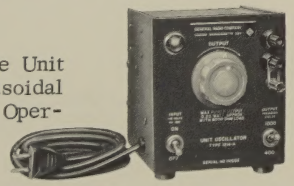
Two models available:
Type 1201-B (for 115-v operation).
Type 1201-BQ18 (for 230-v operation).

TYPE 1263-B AMPLITUDE-REGULATING POWER SUPPLY



For amplitude-regulating cw or 1-kc square-wave modulated output. Maintains oscillator output at a preset value in spite of frequency, load, and line-voltage variations. Particularly useful when the oscillator is mechanically driven. Attaches readily to the Type 1211-C Oscillator. Can be operated from 115-v or 230-v supply.

TYPE 1214-A UNIT OSCILLATOR

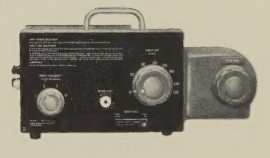


This compact and inexpensive Unit oscillator can be used to provide sinusoidal plate modulation at 400 and 1000 cps. Operates from 115-v supply.

TYPE 908 DIAL DRIVES

These drives install directly in place of the knob on the oscillator dial for automatic frequency sweep. Stops are adjustable and the drives reverse automatically. The Type 908-P1 sweeps the Type 1211-C at 96° per minute and is recommended for use with a graphic recorder: the Type 908-P2 sweeps at 720° per minute and is recommended for oscilloscopic displays; the Type 908-R96, which has provision for manual setting or drive and provides a sweep voltage proportional to the angle of rotation, sweeps at 96° per minute and is recommended for use with an XY recorder.

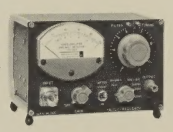
TYPE 1750-A SWEEP DRIVE

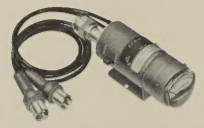


This drive attaches to the knob on the oscillator dial for automatic frequency sweep. It provides a horizontal deflection voltage proportional to shaft angle. It offers an adjustable sweep arc, adjustable center-position of the arc, and adjustable sweep speed. A blanking circuit eliminates the oscilloscope return trace and produces a base line.

Two models available:
Type 1750-A (for 115-v operation).
Type 1750-AQ18 (for 230-v operation).

TYPE 1232-A TUNED AMPLIFIER AND NULL DETECTOR
TYPE 1232-P1 RF MIXER





With the Type 1211-C as a local oscillator, this detector and mixer form a sensitive heterodyne detector with a high degree of harmonic rejection. Can be used from 70 kc to 60 Mc.

TYPE 1212-A UNIT NULL DETECTOR
TYPE 1212-P3 RF MIXER

This detector and mixer combine (with a Type 1211-C as the local oscillator) to form a sensitive heterodyne null detector from 3 Mc to 60 Mc. The Type 1212-A requires an external power supply.

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